	Type	L #	Hits	Search Text	DBs	Time Stamp
1	BRS	L1	879299	(position or positioning or location or located or locating or orientate or orientated or orientating or orientation or translate or translated or translating or translation or rotate or rotated or rotating or rotation) near5 (sense or sensor or sensing or measure or measurement or measuring or measured or detect or detector or detecting or detected or detection)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB; USOCR	2003/06/03 18:29
2	BRS	L2	386980	(data or information or email or mail or identity or identify or identifying or identified or identification) near5 (code or coded or coding or encode or encoded or encoding or encrypt or encrypted or encryption or cipher or ciphered or ciphering or encipher or enciphered or ciphering or cypher or cyphered or cyphering or encypher or encyphered or cyphering)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB; USOCR	2003/06/03 18:31
3	BRS	L3	3792	1 near10 2	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB; USOCR	2003/06/03 18:31
4	BRS	L4	59081	2 near5 (paper or card or email or mail or message or text or graphic or graphically or symbol or emblem or picture or pictograph or pictographically)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB; USOCR	2003/06/03 18:31
5	BRS	L5	14884	2 near5 (source or origin or sender or addressee)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB; USOCR	2003/06/03 18:32

	Type	L #	Hits	Search Text	DBs	Time Stamp
6	BRS	L6	63697	(authority or authorize or authorized or authorizing or authorization or permit or permitted or permitting or permission or enable or enabled or enabling) near5 (card or email or mail or message or text or graphic or graphically)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB; USOCR	2003/06/03 18:33
7	BRS	L7	1919	2 near10 6	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB; USOCR	2003/06/03 18:33
8	BRS	L8	23	3 and 7	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB; USOCR	2003/06/03 18:33
9	BRS	L9	21	8 and 4	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB; USOCR	2003/06/03 18:33
10	BRS	L10	5	9 and 5	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB; USOCR	2003/06/03 18:33
11	BRS	L11	23	8 or 9 or 10 Scanned Ti,Ab,kwic all	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB; USOCR	2003/06/03 18:52
12	BRS	L13	138	((@pd<=19710101 not @pd<=19470101) and (283/113 or 342/752 or 380/54 or 382/101 or 382/287 or 382/289 or 382/291 or 382/313 or 382/314 or 705/1 or 709/206).ccls.) Scanned Ti all	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB; USOCR	2003/06/03 19:09

	Document ID	Issue Date	Inventor	Current OR	Current XRef	Pages
1	DE 29814254 U	19981008				1
2	US 3716701 A	19730213	COHEN D	235/451	365/101; 365/102	8
3	US 20020043562 A1	20020418	Zazzu, Victor et al.	235/457		21

L11 results

	Document ID	Issue Date	Inventor	Current OR	Current XRef	Pages
1	US 2417163 A	19470311	Name not available	380/54		3

L13 results

US-PAT-NO: 3716701
DOCUMENT-IDENTIFIER: US 3716701 A
TITLE: ENCODED DATA CARD SYSTEM

--------- KWIC ---------

Title - TTL (1): ENCODED DATA CARD SYSTEM

OCR Scanned Text - LPAR (1): Feb. 13t 1973 D. J. COHEN 3,,716,701 ENCODED DATA CARD SYSTEM Filed Nov. 9, 1970 2 Sheets-Shee4l, FIG. 1 167 FIG. 5 6cL, F] F] F- I F 1:1 F-I F@ 1- 1 14CL F] f F-I 1- 1 'El F] F] 12 CL 14 F] F-I F] F] 2 F-I F] 1-1 F] R -18 F] F- @ 1 8 10 IOCL--14 FIG. 6 14 FIG. 2 1 8 16 8/- 10 /- 112"-114 116 120 106 12--iEZA '(4L4@4 4EG-9494r- Q-18 FIG. 3 114A 110CL-- 26 102 -(04 llob-- 104-- Fl:-]] 28 Fr- -f L- 104 2 . Fl:ll Fl:ll 22 8 FE: 11 E:@] 122 F 1 13- @100 28 FIG. 7 122cL 106ct L V' v 20 30 14 FIG. 4 16 132-- 130 10 108C L-- ----114cL 110CL-- 3 112m-- 2@. 18 20 32-, -134 100 1344 FIG. 8 114 116 1 z Z!@PZ)4 130 2 2 C L I n v e nt o r 134 DAVID J COHEN ri 16, By 106CL -L @108, L112ct 130-/ -f A t t y .

OCR Scanned Text - LPAR (3): 3 1 7 1 6 9 7 0 1 .-United States Patent Office P a t e n t e d F e b . 1 3 , 1 9 7 3 3,716,701 ENCODED DATA CARD SYSTEM David J. Cohen, 9614 N. Crawford, Skokie, 111. 60604 5 Filed Nov. 9, 1970, Ser. No. 87,774 Int. Cl. G06k.7/@08; Gllb 25104 U.S. Cl. 235-61.11 H 18 Claims ABSTRACT OF THE DISCLOSURE 10 This invention relates to a high bit density encoded data card and code detector wherein the data is conceajed from the observer thereof. The card comprises a thin metallic plate of a non-ferrous or ferrous material in which a plu- rality of holes are selectively placed. The code detector 15 comprises a plurality of conductive squares or circles upon an insulated board; the holes of the card being se'lectively Placed to correspond spacially with the conduct board. When an audio frequency voltage is proximity to the card by means of a condu 20 placed thereon but insulated therefrom, volta be capacitively coupled only to those conductors o e board which are opposite the holes of the card. 25 BACKGROUND OF INVENTION This invention relates to an improved encoded data card and an associated code detecting device and in particular it relates to a new, non-magnetic high bit density credit 30 card system. Credit cards over the past ten years have increasingly grown in use and today they form an integral part of the economy, not only of the United States, but the world 35 Banks have mass mailed credit cards to millions of perso-ns throughout the United States inducing greater use of the credit card. Prominent economists have forecasted that our economy in the future will be based almost, if not co.m- pletely, on the extension of credit, the consumer being 40 identified by means of an encoded card having a permanent identification number. Credit cards have some basic problems both to the con- sumer and the businessman. Stolen credit cards can, and do cause millions of dollars in losses to consumer and 45 businessman alike. If the card is lost or stolen, the con- sumer is responsible until the company issuing such card is notified. The banks who have issued credit cards en niasse have sustained millions of dollars in losses because of stolen and lost cards through the mail. 50 Today the standard credit cards are embossed on a vinyl material. These cards are usually fabricated 55 at a time form a two foot by three foot. sheet of opaque vinyl ap- proximately 20

mils thick; on this sheet is printed the de- sired matter. The opaque sheet is then coated on each 55 side with two pieces of clear vinyl approximately 5 mils thick; the clear vinyl being applied to the opaque vinyl by a press which applies the necessary pressure and heat si- multaneously. The cards are then embossed. The embossed cards are capable of containing several bits of information; 60 however, all of the bits of information are obvious to the holder thereof. Another type of data card which is presently in use is the magnetic type card. A ferrous material is selectively de- posited on a non-ferrous base and then covered with a 65 vinyl or other similar material. Another type of data card is of the digital class which is encoded by selectively depositing conductive material on a non-conductive base. The latter two types of cards are usually for security 70 systems wherein access to specific areas are limited. These cards are not capable of holding many "bits" of informa- 2 tion and require a very expensive and complicated system for a readout or a clearance. The existing encoded credit and secarity cards do not provide a card having the capability of concealing several bits of information, the specific information being known only by the holder thereof. It is desirabie both from a security and a credit card purpose to provide a card which is capable of holding a large quantity of information bits which are not exposed to the world to see or decipher. The existing concealed encoded cards do not provide an easy inexpensive means for reading and for scanning the data card. It is further desirable to provide an encoded data card which can be manufactured economically in large quantities and which has the information concealed thereby preventing unauthorized use thereof, and once the card is encoded it so remains permanently and will not undergo alteration due to prolonged usage. . The present invention not only provides for inexpensive mass produced encoded card capable of h- avin- concealed thereon a large quantity of information bits but provides for an inexpensive means to check or otherwise verify the data contained on the card. The invention, in general, incorporates the principal of capacitive coupling. One means of utilizing the principal of capacitive coupling is to selectively place conductive elements on the card. A second means utilizes selectively placed elements as shields which, when present, precludes capacitive coupling between elements of the reader. In either case the encoded digital configuration is incorporated on the card during manufacture. SUMMARY OF THE INVENTION The present invention incorporates the principal of capacitive coupling. A preferred embodiment of the invention uses a metal plate which is- selectively punched to form the desired digital code. Another embodiment uses a dielectric base having a digital code imprinted on a card by means of copper etching. This latter embodiment may take the form of a printed circuit board. The basic plate containing the digital information is covered with a vinyl material on both sides, not only to conceal the information bits contained in the plate, but to give it ri-idity and also enable any desirable embossing thereon, . including the user's name. The concealed bits of information being the digital code concealed within the card is only known to the user and this can be readily verified by the readout or verifying system for said card. The principal object of this invention is to provide a data card containing a large quantity of concealed information bits. Another object of this invention is to provide a data card having concealed therein a large quantity of information bits which is inexpensive to manufacture. A further object is to provide a security card which can be readily verified without the need of expensive readout equipment. Still a further object is to provide a credit card having a concealed code imprinted therein which will not undergo change with prolonged use. Still another object is to provide a high information bit density encoded card having means to be easily and readily verified. Still another object is to provide a credit card obviating the need for embossing thereof,

wherein the account number is encoded and may be electrically decoded and directly entered to an electric printer and/or a data processing system for checking credit. In the drawings: FIG. I illustrates a plan view of a high bit density encoded card without any surface covering.

OCR Scanned Text - LPAR (4): 31716,701 3 FIG. 2 illustrates an enlarged cross section taken generally along 2-2 of FIG. I ipcluding a dieiectric covering not illustrated in FIG. 1. FIG. 3 illustrates a detector board for use with an encoded card. FIG. 4 illustrates an enlarged edge view of the encoded card illustrated in FIG. I with the dctector board illustrated in FIG. 3, in position for decodin- FIG. 5 illustrates a copper etched encoded card corresponding to the embodiment of FIG. 1. FIG. 6 illustrates a second embodiment of a copper etched encoded card. FIG. 7 illustrates a detector board for use with the encoded data card illustrated in FIG. 6. FIG. 8 illustrates an edl,,e NliciA, of the encoded card illustrated in FIG. 6 with tt@e detector board illustrated in FIG. 7, in position for decociiii,,- FIG. 9 illustrates an ed.-c view of the encoded card of FIG. 6 havin.- a plastic coating thereon. FIG. 10 illustrates a third etched construction for an encoded card. FIG. 11 illustrates a detector board for use with the encoded card illustrated in FIG. 10. FIG. 12 illustrates a punched tape havin,,, adhesive paper over the punched metal. FIG. 13 illustrates the lamination of Mylard sheets to the punched tape and adhesive paper combination. FIG. 14 illustrates lamination of Mylar to the encoded card by means of a vertical press. FIG. 15 illustrates a Mylar lamination apparatus for laminating Mylar to the encoded card. DESCRIPTION OF PREFERRED EMBODIMENT FIG. I illustrates a construction of an encoded card 10 having a hi-Lh bit density. The encoded card illustrated in FIG. 1 utilizes the concept of capacitive coupling and comprises a thin metallic plate 12 of a non-ferrous conductor such as aiuminum. However, it is understood that other conductive materials could be used. A plurality of holes @14 are punch,-d out of th-. I)Iate 12 to represent a specific code. A tab 16 extends from a corner of the encoded card 10 for connectin.@, it to ground potential. FIG. 2 illustrates an enlarged cross section taken geneially along litie 2-2 of FIG. I and includes a cross section of a dielectric material 13 which can be affixed to each side of the plate 12. The dielectric 18 is of a plastic or epoxy material and conceals the plate 12 and the codc imprinted thereon; the tab 16 being left exposed FIG. 3 depicts a detector board 20 for use with the encoded card 1.0 illustrated in FIG. 1. The board 20 comprises an insulatin,@ material 22 to which copper 24 or other conductive material is clad to by means well known in the art. A plurility of rectangular conductors 26 are etched from the copper by means well known in the art. It is understood that @eometrical shapes, other than rectan.-lular, could be used and that this invention is not limited to rectan@ular shaped conductors or non conductors. Each conductor 26 on the detector board 20 is coupled to a separate impedance Z by means of a shielded wire 28. There are as many impedances, ZN as there are conductors 26; impedances ZI, Z2, Z3 and Zx only being illustrated to rnaintain clarity. Each impedance can feed a readout device for determining the correct identity of the user of the card, FIG. 4 illustrates an enlarged ed-e view of the encoded card 10 in a position for a readout. A conductive plate 30 is connected to an audio-oscillator 32, said plate 30 being positioned on the encoded card 10; the face of the conductive plate 30 and the dielectric material -18 being adjacent one anoth.-r. The plate 12 as hereinabove stated is grounded'-shielding the detector board 20 from the oscillator potential 32. However, oscillator voltage will be capacitively coupled through the holes 14 of the plate 12 to corresponding conductors 26 of the detector board 20. Each hole 14 is punched in plate 12 to correspond to o@ie of the conductors 26. The size of the hoics 14 and 4 the conductors 26 do not

have to be the same. In fact, I have found that if the holes 14 of plate 12 are smaller than the conductors 26 of the detector board 20, cross coupling capacitance is reduced considerably. It is the number and position of the holes 14 in the plate 12 which det.-rmiiies the specific code. FIG. 5 illustrates an encoded card 10a similar to the one illustr,,tted in FIG. I havin.- holes 14a etched ftom a copper clad plate 12a in lieu of punching holes 14 in the 10 aluminum plate 12. 1 have kept the same designations for the card, plate and holes illustrated in FIG. 5 as used in FIG. I adding an alphabetical suffix thereto. In operation the copper clad plate 12a performs the same as the punched aluminum plate 12; the copper being clad to a 15 base by means well known in the art and the holes being etched therefrom by well known techniques. Capacitive couplin,@ occurs through the etched holes 14a to the conductors 26 of the board 20; the etched copper plate 12a beina grounded, shields the oscillator voltage 32 from the 20 detector board 20. The specific code being deterniined by the number and positioning of the etched holes. The plate 12 of FIG. 1 is easily and economically encoded with the use of standard techniques. The plate 12(i can be encoded using various standard techniques for 25 fabricating printed-circuit boards. I have also found that if the conductive plate 30 is made an inte.-ral part of this card and constructed of Jead or lead alloy, the combination will yield an encoded card which is impervious to X-rays, inhibiting visual detection 30 of the encoded card by means of X-ray. Encoded tape can be manufactured by utilizing a punched tape of aluminum; the aluminum tape passing between the plate 30 and the detector board 20. This would result in a high speed tape reader system wherein 35 the tape does liot contact the reading means, It should further be noted that punched tapes fabricated in accordance with the above principles results in a more pc-rmanent record than is Possible with paper tape since a metallic tape is more durable. Additional durability or security 40 can be added by coating the punched aluminum tape with Mylar or other dielectric material. The non-visible encoded cards described hereinabove have a hi.-h bit density in comparison to other non-visible encodidg methods, such as magnetic encodin-. The mag- 45 netic encoded card is capable of holding approximately 30 bits on a 3.375 inch by 2.125 inch credit card wherein the card illustrated in FIGS. 1, 5, 7 and 10 can hold beta,een 60 to 70 bits in the same size card. FIG. 6 illustrates an encoded data card 100 comprising 50 a copper etched printed-circuit board 102. The printed circuit board 102 comprises a dielectric base 104 such as paperboard having etched thereon grounded copper conductors 106, and a plurality of copper conductors 108, 110, 112, 114, and 116. Each grounded copper condue- 55 tor 106 is spacially positioned adjacent to each conductor so that alternating conductors are grounded. An oscillator 120 is connected to each of the conduct;ve conductors 108 throu.-h 116 Nvhile the grounded conductors are corinected to a ground designated numerically by the 60 numeral 122. A typical encoded card as designated by the numeral 100 has overall dimensions of approximately 21/@ inches x 33/8 inches. The etched conductors, both grounded and ungrounded are of approximately one sixteenth (Ylc,) of an inch in width, thereby enabling a large 65 number of conductors to be etched on a standard size encoded card. A code is placed on each encoded card by severing none, one, or more of the conductive conductors. FIG. 6 shows conductors 110 and 114 severed into two and each of said parts being respectively desig- 70 nated 110a, 110b, 114a, and 114b. The oscillator fre- quency voltage is not impressed upon the severed conductive conductors 110b and 114b; the dielectric 104 separating these conductors from the part of conductors 110a and 110b which are connected to the oscillator 120. It is 75 understood that the, standard encoded card is suitable for

OCR Scanned Text - LPAR (5): 5 having several alternating grounded and conductive conductors etched thereon; however, FIG. 6 only i-liustrates a few for clarity of illustration and description. I have found that an oscillator frequency between one (1) to ten (10) kHz. at an amplitude of approximately 30 volts will achieve the desired results; however, other frequencies and voltage amplitude may be used. A vinyl or similar type coating, 124 as illustrated in FIG. 9, may be placed on each side of the printed circuit board 102, by means well known in the art, thereby concealing the code to all but the holder thereof. A detector board 130 for the above described encoded card is illustrated in FIG. 7 and comprises a copper etched printed circuit board 132 having a dielectric base 134 such as paperboard or other similar type dielectric. The detector board 130 has etched thereon a plurality of grounded conductors and conductors having the same numerical designations as the afore-described encoded card in FIG. 6 but different alphabetical suffixes to avoid confusion. The grounded conductors 106a are connected to a ground point designated by the numeral 122a. Each of the conductors 108a, 110a, 112a, 114a, and 116a do not run the full length of the board 130; bowever, if the said conductors ran the full length of the board 132 said conductors would be severed. The detector board has the same number of grounded and ungrounded conductors as the encoded card; the detector board also having the grounded conductors adjacent each of the ungrounded conductors but spaced therefrom. An impedance designated generally by ZI, Z2, Z3, Z4, ZN is coupled to one part of each of the ungrounded conductors; namely, Z, is coupled to 108a, Z2 tO 110a, Z3 tO 112a, Z4 tO 114a, and ZN to 116a. It is understood that an impedance would be coupled to each ungrounded conductor of the detector board as hereinabove described. A vinyl or other similar type coating, not shown, may also be applied to each side of the printed detector board similar to the enclosed card. In such case, means for effecting edge connection to the board, common in the art, is required. To obtain an electrical readout the encoded card 100 is- positioned over the detector board 130 as illustrated in FIG. 8, said figure illustrating an edge view of the encoded card in position for a readout. The encoded card is placed directly over the detector board with the ungrounded conductors of corresponding numerical designations being in line with one another but not in physical contact therewith. When this is done impedances Zl, Zs, and ZN become capacitively coupled through the capacitative field established between the respectively associated ungrounded conductor pairs 108, 108a,112,112 ' a, and 116, 116a. With an oscillator providin- a signal of 30 volts RMIS at 1.2 kHz., the voltage measured across Zl, Z3, and ZN was approximately one volt RMS. The voltage measured across like impedances Z2 and Z4 was approximately two-tenths (0.2) volt RMS, a ratio of approximately 5 to 1. The lower voltage readings on Z2 and Z4 occurred due to ungrounded conductors 110 and 114 being severed as illustrated in FIG. 6, thereby the signal from the Oscillator 120 not being impressed upon the conductors 110b and 114b, capacitive coupling could not occur to conductors 110a and 114a. The voltage that did occur across an impedance such as Z2 was caused by cross-coupling capacitance between conductor pairs 108, 110a; and 112 and 110a. I also found that if the shielding conductors 106 on each side of conductor 110a were disconnected from ground potential and left "floating" then the voltage across Z2 was approximately that which appeared across impedances Z, and Z3. Likewise, if the grounded conductors 106a on each side of conductor 114a were disconnected from ground potential and left "floating" the voltage which appeared across Z4 would be approximately the same voltage that appeared across impedances Z, and Z3. It is therefore very important to use grounded 3,716,701 6 shielding conductors 106a if a significant difference in voltage across impedances ZI, Z3, and Zlq with respect to impedances

Z2 and Z4 is to result. If a digital ",D" is defined as a voltage of less than 0.4 volt RMS and digital "I" being defined as a voltage in excess of 0.8 volt, the encoded card illustrated in FIG. -6 represents the binary number "10101" reading from Z, tO ZN respectively. The code can be varied by selectively severing the conductive conductors 108 through 116. 10 The AC voltage output across impedances Z, through Zx are converted by means well known in the art to corresponding DC voltages as commonly used in digital data circuits. In operation the holder of the encoded card informs 15 the sales person of the special code number. The salesperson then takes the card 100 and places it on the de- tector or readout board 130. The oscillator 120 may be connected to the encoded card by a standard printed cir- cuit board edge-cofinector resulting in output, which if 20 the same as the inumber given by the user to the salesperson confirms that the user is the rightful holder of the card. If the readout number disagrees with the nuni- ber given the salesperson, then they are put on notice that the person holdin.- the card is not the owner of the card. 25 1 further found that if conductors 110 and 114 were completely disconnected from the oscillator 120 in lieu of being severed as illustrated in FIG. 6, the volta.- es measured across Z2 and Z4 would even be less than the voltage measured when said conductors were severed. 30 However, the same potential would appear across inipedances ZI, Z3 and ZN since they would be connected to the oscillator as before. Disconnecting of the conductors from the oscillator 120 of selected conductors versus the severing thereof effects a greater voltage difference 35 in relative value of the "1" and "O" voltages for digital readout. FIG. 10 illustrates an encoded card 200 which can provide a greater density of encoded data than the card 100. The high density encoded card is comprised of a 40 copper clad printed circuit board 202, the surface con- sisting almost entirely of solid copper 204. Etched from this copper surface are rectangular copper conductors 206, 207, 208, 210, 212, the remaining such copper conductors having no designations to maintain clarity of 45 illustration and description. All of such copper rectangular conductors being of approximately the same size and having approximately the same conductivity. The rectangular conductors are isolated from the copper plate 204 bv a dielectric insulatin--- materiai 214 upon which 50 all of the copper is clad. The rectangular conductors, such as those designated 206, 207, 208, 210, 212 are connected together by a thin copper conductor 216 when the card 200 is fabricated. The card 200 is encoded by- selectively severing the rectangular copper conductors 55 from the conductors 216a, 216b and 216c respectively. In FIG. 10 rectangular conductors 207, 208 and 210 are severed from conductors 216a, 216b and 216c respectively, in accordance with the desired code. An oscillator 220 is connected to conductors 216a, 60 216b and 216c; the other side of the oscillator is connected to a ground 222, the copper base 204 also being connected to the ground 222. . FIG. 11 depicts a code detector board 230 for use with the encoded card 200 illustrated in FIG. 10. The 65 board 230 is also an etched copper clad printed circuit board and is almost identically etched as the card 200, except the conductors 216 are deleted. The board is also similar to the detector board 20 illustrated in FIG. 3. The corresponding conductors etched on the board 70 230, have the same designation as those on the board 200 with the addition of the suffix "a" and each of the conductors on board 230 are isolated from one another and the copper sheet 204a by the insulated board 214a on which the conductors are clad. 75 To all of the conductors 206a, 207a, 208a, 212a on the

OCR Scanned Text - LPAR (7): 9 Step 4(B): Following step 3(B) above, 2 sheets of clear Mylar about 2 mils thick are then placed on each side of the laminated assembly of FIG. 15. This new

assembly is passed through the rollers 320 thereby resulting in a completed laminated assembly. Step 5: The completed laminated assembly is then accurately punched using the guide holes described above to precisely cut out individual encoded cards. It should also be noted that the type of cards as fabricated above will have metal edges exposed on four sides, and that an appropriate card reader, which can effect electrical connection to the edge of the metal insert, is necessary. Any of the edges of the laminated card may be connected to this reader. It should be noted that the type of card fabricated by Method 11 described above, is more secure than that of Method I since the layers of vinyl enclosing the punched metal insert are fused together through the punched holes thereof. This same degree of security is attained in other types of cards only by making the inserts thereof somewhat smaller than the overall credit card size, thereby enabling a border of only Mylar around all edges of the insert. A card containing a border consisting of only two sheets of laminated Mylar becomes virtually impossible to open or pry apart without destroying the Mylar film and the laminated contents. However, if maximum data density is required on an encoded card this latter method may not be desirable since less area of the encoded insert is available. It is, therefore, seen that the specific type of card to be fabricated may be highly dependent upon the amount of security required versus the bit density required. In either case a trade-off is necessary. It should also 'be noted that to fabricate a card, as disclosed herein with plastic borders only, the assembly must first be punched to the desired insert size, and each of these inserts in turn individually punched and laminated (at greater expense). As a final step to either Method I or 11, a readout system placed at the end of the production line can be used to test and identify each card. This readout system can operate an electrically operated di.-ital printer. A hard-tempered aluniinum will provide a sufficiently strong card, particularly with the additional support provided by the two 10 mil sheets of plastic film. The strength inherent with the brass or bronze should not be sufficiently beneficial for high volume applications, in view of the added material cost involved. Using aluminum, a metal insert wiH cost about one cent, whereas u.sing brass the cost would be about six cents. The detector board and associated impedances ZI, through ZN of FIG. 11 constitutes a basic card reader which provides an A.C. binary coded output. Since most data processing equipment operates from D.C. logic levels, it is necessary to convert the A.C. voltages to corresponding D.;C. voltages. This conversion is achieved by means well known in the art. Each encoded bit requires an output circuit and each impedance Zll through ZN is connected to such an output circuit. The output circuit comprises an A.C. amplifier for boosting the detector board output voltage which in tum is connected to an A.C./D.C. converter, the D.C. output of which is fed to a D.C. level detector. When the D.C. output is below a predetermined level, the level detector output will be at one D.C. voltage value, and when the output signal from the A.C. to D.C. converter is above the predetermined level, the output of the level detector will switch to a second D.C. voltage level. In practice, a user will present his encoded card to a salesperson, clerk, or other such person who would insert the encoded card onto the card code detector as previously described herein. The user would have to know his specific number (referred to hereinafter as the "verifyin-. number") encoded in the encoded card as described herein. The salesperson, clerk, etc,. would depress push-buttons or similar type switches to correspond to that number 3,716,701 10 which would result in a digital code which could be electrically stored. If this stored code matched that encoded on the particular card, a corresponding electrical output would result. This output can operate a light and/or initiate a particular occurrence such as opening a door if the card were used to gain access to secuiity areas. It is

understood that wherever the term audio oscillator is used hereinabove, that various other alternating current sources may be used equally well. 10 The encoded data card and associated detector as discussed hereinabove constitute an encoded data card system. The encoded cards herein described do not need any identification written or embossed thereon. If required, 15 only the person's name and signature may be printed on the card. If such a card were found or stolen, the new possessor thereof would be hard pressed to use the card. A central mailing address might be printed on the card to facilitate its return to the rightful owner. The aforesaid 20 systems are valuable for use in restaurants, airline terminals and other establishments employing credit card systems providing an open line of credit. However, more sophisticated systems which also provide a credit check subsequent to verification are also possible if the credit 25 card number is encoded in the card. In such case it is essential that a high bit density be used. It is believed that t' ie invention has been described in such detail as t(> enable those skilled in the art to understand the same, and it will be appreciated that variatioiis 30 or modifications may be made v@ithout departing j'rom the spirit and scope of the invention. What is desired to secure by Letters Patent in the United States is: 1. An encoded data card system the system comprising: 35 an encoded data card having a base plate and a plu- rality of information bits selectively positioned on said base plate, said information bits seleetively defining a code; a detector means having a @first and second plate, said 40 plates being opposite and parallel one another and being positioned to define a space between said first and second plate to enable the encoded data card to be positioned therebetween, said first plate being uniformly conductive; and 45 a dielectric material separating the information bits from the first and second plates of the detector means. 2. An encoded data card system as defined in claim I wherein the base plate of the encoded data card is of a conductive material and said information bits are aper. 50 tures through said base plate. 3. An encoded data card system as defined in claim 2 wherein said encoded data card system further comprises: means for coupliing said base plate to a ground potential. 55 4. An encoded data card system as defined in claim 3 wherein the first plate of the detector means has means for coupling thereto an alternating current source. S. An encoded data card system as defined in claim 2 wherein said condurtive material for the base plate of Go the encoded data card is metallic. 6. An encoded data r-ard system as defined in claim 3 wherein said second plate of the detecting means com. prises: a dielectric base having conductors positioned thereon, 65 said conductors having a predetermined configuration- corresponding to the information bits of the enroded card; and means for transmitting electrical data through said encoded data card to said second plate of the de- 70 tecting means. 7. An encoded card system as defined in claim 6 where- in said detecting means further comprises: an impedance coupled to each of said conductors, said impedance being a voltage detecting device. 75 S. An encoded data card system as defined in claim

OCR Scanned Text - LPAR (8): 7 A,herein the means for transmitting electrical data throtigh the encoded data card to the detecting means comprises: electrically coupling said information bits and detectin@ means capacitively by positionin- the card over the detecting means whereby the information bits in said encoded card are positioned over corresponding conductors of the detectin,a means, a lar,-er current bein-, transniitted through each of said information bits to its corresponding detector conductor than where there is no- information bit opposite a detector conductor. 9. An encoded data card system, comprisin.@: an encoded data card havin.- a dielectric base plate and a plurality of information bits selectively positioned on said base plate,

said information bits selectively d-.fining a code; a detector means having a plate opposite one face of the encoded data card ; wherein said information bits are a plurality of conductors spaced from one another, the dielectric being interposed adjacent each conductor. 10. An encoded data card as defined in claim 9 wherein altern,@itiii.- conductors are connected to a -round poletitial. 11. An encoded data card system as defined in claim 10 wherein each conductor interposed between said groundcd conductors ire connected to an alternating current source; and wherein said code is generated by selectively severing predetermined conductors to said alternating current source. 12. An encoded data card system as defined in claim 11 wherein the detector means comprises: a dielectric plate having a plurality of copper conductors positioned thereon and spaced from one another, the dielectric plate being interposed between each conductor and said conductors corresponding to the- conductors of the encoded card. 13. An encoded data card system as defined in claim 12 wherein the detecting means further comprises: an impedance coupled to alternating conductors, said impedance being a volta.-c detectin-. device; and wherein the conductors adjacent said alternating condiictors are coupled to ground. @14. An encoded data card system as defined in claim 13 wherein the means for transmitting electrical data from the encoded data card to the detectin.@ means, comprises: electrically couplin.- said encoded data card and de- 3,716,701 12 tecting means capacitively by positioning the card over the detecting means whereby the non-grounded conductors in said data card are positioned over corresponding conductors of the detecting means, said capacitive coupling causin- a larger current to be transmitted through said conductors not severed than the severed conductors. 15. An encoded data card system as defined in claim wherein said encoded data card further comprises: 10 a plurality of copper conductors positioned on the di- electric base plate; and an alternating current source connected to said conductors, wherein said code is @-enerated by selectively severing- conductors from said current source. 15 16. An encoded data card system as defined in claim 15 wherein said means for detecting said code comprises: a dielectric base plate having conductors positioned thereon corresponding to the information bits of the encoded card; and 20 means for transmittin- electrical data from said en- coded card to said detectin.- means. 17. An encoded data card system as defined in claim 16 wherein said detecting means further comprises: an inipedance coupled to each of said conductors, said 25 impedance bein@ a voltage detecting device. 18. An encoded data card system as defined in claim 17 wherein the means for transmitting electrical data from the encoded dita cird to the detecting means comprises: 30 electrically coupling said information bits and detecting means capacitively by positioning the card over the detecting means whereby the information bits of said data card are positioned over corresponding conductors of the detecting means, said capacitive 35 coupling causing a larger current to be transmitted from said conductors not severed than from the severed conductors. References Cited 40 UNITED STATES PATENTS 3,376@559 4/1968 JLlllji Yaf-n@ito et al. 235-61.11 H 3 397,393 8/1968 Pzilmiiteer ------ 235-61.11 H 3:404,3S2 10/1968 Rosenheek et al. -- 235-61.11 H 3,585,368 6/1971 Z@Linamaker ----- 235-61.11 H 45 DARYL W. COOK, Primary Examiner U.S. Cl. X.R. 340-173 CA

PGPUB-DOCUMENT-NUMBER: 20020043562
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20020043562 A1
TITLE: Multi sensor information reader
PUBLICATION-DATE: April 18, 2002
INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Zazzu, Victor	Belle Mead	NJ	US	
Han, Wenyu	Princeton	NJ	US	

US-CL-CURRENT: 235/457

ABSTRACT: An information reader formed within a unitary enclosure for sensing whether information on a surface to be read is valid includes a plurality of different sensors for sensing the presence of different types of information on the surface being read. Each sensor is programmed to sense whether certain criteria pertaining to that sensor are met. In addition, the outputs of selected sensors are compared to ascertain whether the outputs of the selected sensors have a preset relationship indicative of a valid condition. In one embodiment the information reader includes a hologram sensor, a surface quality sensor, a bar code reader and a magnetic stripe read/write sensor.

--------- KWIC ---------

Summary of Invention Paragraph - BSTX (8): [0007] In one embodiment of the invention a multi sensor reader includes a bar code reading means for sensing bar code data contained on a card in combination with a magnetic data reading means for sensing magnetic data contained on said card.

Summary of Invention Paragraph - BSTX (9): [0008] In another embodiment of the invention a multi sensor reader includes a bar code reading means for sensing bar code data contained on a card, a magnetic data reading means for sensing magnetic data contained on the card and optical sensing means for sensing holographic information contained on the card.

Summary of Invention Paragraph - BSTX (10): [0009] In a still farther embodiment of the invention, a multi sensor reader includes bar code reading means for sensing bar code data contained on a card in combination with a magnetic data reading means for sensing magnetic data contained on the card, a first optical sensing means for sensing holographic information contained on the card, and a second optical sensing means for sensing certain characteristics of the card surface.

Detail Description Paragraph - DETX (12): [0037] 4. A bar code reader 20 including a light source 21 for illuminating a card and light sensing means (not shown) for reading bar code information contained on the underside of the card ; and

Detail Description Paragraph - DETX (18): [0043] As the card approaches position sensor PS4, the magnetic head is activated (if not previously activated) and the data on the magnetic stripe can

be decoded. As the card passes position sensor PS5, all of the information on the card has been read. The CPU 10 then performs calculations on the holographic and/or bar code data which has been read from the card to determine if the data that was read from the card is valid. If the information on the card is determined to be valid, then that information is passed on to the host computer 90 and the card is ejected out of the rear (or the front) of the reader. If the data read from the card is deemed to be invalid, then that information is also transmitted to the host computer 90 and the card is then rejected (either out of the front, or the rear, of the reader).

Detail Description Paragraph - DETX (35): [0060] Mounting the bar code reader 20 and the magnetic stripe reader/writer 30 in the same enclosure 3, and coupling the two units together to the same CPU 10 facilitates the performance of the following functions. The bar code reader 20 is positioned (see FIG. 2) to read bar code data (parallel black and white stripes) formed on a passing card. The magnetic stripe read/write scanner 30 is positioned to either read data from a passing card or to write data on a passing car, under the control of CPU 10. In one embodiment of the invention, the bar code reader 20 is located such that the bar code data will be read and decoded and fed to the CPU before magnetic data is read or written. However, it should be appreciated that other arrangements are possible (e.g., the magnetic data could be read first and then stored until the bar code data is read and decoded). Bar code data read from a passing card can be decoded and fed to the CPU 10 to prime the CPU 10 such that, when the CPU 10 receives signals from the magnetic scanner 30, it can modify or interpret the sensed "magnetic" data according to commands contained in the bar code data. Thus, the bar code data and the bar code reader can be used to control the reading of the magnetic stripe data and to correctly interpret the "magnetic" data. The bar code reader can also supply signals to the CPU 10 which can then supply signals to the scanner 30 to write (encode) a card passing through the information reader enclosure.

Claims Text - CLTX (14): 13. A multi-sensor reader for reading coded information located on a surface of an object comprising: a housing including means for receiving the object; a light source located within the housing for projecting light onto the surface of said object at a first acute angle; a first optical sensor located within the housing for sensing light reflected back towards the light source from the object's surface at a second acute angle for sensing coded information; a second optical sensor located within the housing for sensing light reflected at an obtuse angle away from the light source for sensing the reflectivity characteristics of the surface of the object; and a light shield, located within the housing, for blocking any of the light reflected at an obtuse angle from impinging on the first sensor.

Claims Text - CLTX (19): 18. An information reader for reading data contained on a card to be inserted within said reader comprising: a bar code reading means for sensing bar code data contained on a card ; a holographic sensing means for sensing any hologram present on said card, a surface detector for sensing certain reflectivity characteristics of a surface of the card and a magnetic data reading/writing means for sensing magnetic data contained on said card, said bar code reading means, said holographic sensing means and said magnetic data reading/writing means and said surface detector being contained within the same enclosure; and wherein said surface detector produces a continuous signal voltage corresponding to the reflectivity of a surface of the

card as the card enters and passes through the reader, independently of said holograph sensing means.

Claims Text - CLTX (21): 20. An information reader as claimed in claim 19, wherein said bar code reading means is physically located, within the information reader enclosure, before the magnetic data reading/writing means to enable a card passing through the enclosure to be read by the bar code reader prior to being operated upon by the magnetic data reading/writing means and for the information which is read by the bar code reader to be decoded and sent to the CPU before the card passes by the magnetic data reading/writing means.

DERWENT-ACC-NO: 1998-533604
DERWENT-WEEK: 199849

TITLE: Coded card with insertion direction identification - has detectable markings on card to enable identification of position of information carrier: markings can be raised parts or recesses, e.g. recessed points and embossed points which can be in form of braille
PRIORITY-DATA: 1998DE-2014254 (August 8, 1998)
PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
DE 29814254 U1	October 8, 1998	N/A	009	G06K 019/08

INT-CL (IPC): G06K019/08

ABSTRACTED-PUB-NO: DE 29814254U

BASIC-ABSTRACT:

The card has a code such as a magnetic strip (1) and/or an electronic chip (4) as an information carrier for electronic data for processing in a data processing system. Detectable markings on the card enable identification of the position of the information carrier.

The markings are in the form of raised parts or recesses, e.g. recessed points and embossed points which can be in the form of braille. Alternatively, holes (3) and/or cut-away corners can be used.

USE - As magnetic strip and/or electronic chip card for data processing systems

ADVANTAGE - Enables the arrangement or position of the information carrier on the card to be rapidly and reliably detected.

---------- KWIC ---------

Title - TIX (1): Coded card with insertion direction identification - has detectable markings on card to enable identification of position of information carrier: markings can be raised parts or recesses, e.g. recessed points and embossed points which can be in form of braille

Standard Title Terms - TTX (1): CODE CARD INSERT DIRECTION IDENTIFY DETECT MARK CARD ENABLE IDENTIFY POSITION INFORMATION CARRY MARK CAN RAISE PART RECESS RECESS POINT EMBOSS POINT CAN FORM BRAILLE

DIALOG 03 JUNE 2003

File 2:INSPEC 1969-2003/May W4 (c) 2003 Institution of Electrical Engineers
File 9:Business & Industry(R) Jul/1994-2003/Jun 02 (c) 2003 Resp. DB Svcs.
File 15:ABI/Inform(R) 1971-2003/Jun 03 (c) 2003 ProQuest Info&Learning
File 16:Gale Group PROMT(R) 1990-2003/Jun 03 (c) 2003 The Gale Group
File 20:Dialog Global Reporter 1997-2003/Jun 03 (c) 2003 The Dialog Corp.
File 35:Dissertation Abs Online 1861-2003/May (c) 2003 ProQuest Info&Learning
File 65:Inside Conferences 1993-2003/Jun W1 (c) 2003 BLDSC all rts. reserv.
File 99:Wilson Appl. Sci & Tech Abs 1983-2003/Apr (c) 2003 The HW Wilson Co.
File 148:Gale Group Trade & Industry DB 1976-2003/Jun 02 (c)2003 The Gale Group
File 160:Gale Group PROMT(R) 1972-1989 (c) 1999 The Gale Group
File 233:Internet & Personal Comp. Abs. 1981-2003/May (c) 2003 Info. Today Inc.
File 256:SoftBase:Reviews,Companies&Prods. 82-2003/May (c)2003 Info.Sources Inc
File 275:Gale Group Computer DB(TM) 1983-2003/Jun 03 (c) 2003 The Gale Group
File 347:JAPIO Oct 1976-2003/Jan(Updated 030506) (c) 2003 JPO & JAPIO
File 348:EUROPEAN PATENTS 1978-2003/May W04 (c) 2003 European Patent Office
File 349:PCT FULLTEXT 1979-2002/UB=20030529,UT=20030522 (c) 2003 WIPO/Univentio
File 474:New York Times Abs 1969-2003/Jun 02 (c) 2003 The New York Times
File 475:Wall Street Journal Abs 1973-2003/Jun 02 (c) 2003 The New York Times
File 476:Financial Times Fulltext 1982-2003/Jun 03 (c) 2003 Financial Times Ltd
File 583:Gale Group Globalbase(TM) 1986-2002/Dec 13 (c) 2002 The Gale Group
File 610:Business Wire 1999-2003/May 31 (c) 2003 Business Wire.
File 613:PR Newswire 1999-2003/May 30 (c) 2003 PR Newswire Association Inc
File 621:Gale Group New Prod.Annou.(R) 1985-2003/Jun 02 (c) 2003 The Gale Group
File 624:McGraw-Hill Publications 1985-2003/Jun 03 (c) 2003 McGraw-Hill Co. Inc
File 634:San Jose Mercury Jun 1985-2003/Jun 02 (c) 2003 San Jose Mercury News
File 636:Gale Group Newsletter DB(TM) 1987-2003/May 30 (c) 2003 The Gale Group
File 810:Business Wire 1986-1999/Feb 28 (c) 1999 Business Wire
File 813:PR Newswire 1987-1999/Apr 30 (c) 1999 PR Newswire Association Inc

Set	Items	Description
S1	500973	(POSITION??? OR LOCAT???? OR ORIENTAT????? OR TRANSLAT???? OR ROTAT????) (5N) (SENS???? OR MEASUR????? OR DETECT????)
S2	492540	(DATA OR INFORMATION OR EMAIL OR MAIL OR IDENTITY OR IDENTIF???? OR IDENTIFICATION) (5N) (COD???? OR ENCOD???? OR ENCRYPT???? OR CIPHER???? OR ENCIPHER???? OR CYPHER???? OR ENCYPHER????)
S3	1927	S1 (10N) S2
S4	62918	S2 (5N) (PAPER OR CARD OR MAIL OR MESSAGE OR TEXT OR GRAPHIC OR GRAPHICALLY OR SYMBOL OR EMBLEM OR PICTURE OR PICTOGRAPH OR PICTOGRAPHICALLY)
S5	16738	S2 (5N) (SOURCE OR ORIGIN OR SENDER OR ADDRESSEE)
S6	168744	(AUTHORITY OR AUTHORIZ?????? OR PERMIT???? OR PERMISSION OR ENABL????) (5N) (CARD OR EMAIL OR MAIL OR MESSAGE OR TEXT OR GRAPHIC OR GRAPHICALLY)
S7	1848	S2 (10N) S6
S8	15	S3 AND S7
S9	15	S8 AND S4
S10	7	S9 AND S5
S11	15	S8 OR S9 OR S10
S12	15	RD S11 (unique items) [Scanned ti,pd,kwic all]

12/9/1 (Item 1 from file: 16)
DIALOG(R)File 16:Gale Group PROMT(R) (c) 2003 The Gale Group. All rts. reserv.

03802367 Supplier Number: 45420103 (THIS IS THE FULLTEXT)
Duel head printer excels for Videojet
Packaging Week, p16
March 23, 1995
ISSN: 0267-6117
Language: English
Record Type: Fulltext
Document Type: Magazine/Journal; Trade
Word Count: 101
TEXT:

VIDEOJET'S Excel 273se dual head ink-jet printer will make its UK debut.

It can print three lines of text from each omni-directional printhead and features extended bar coding. Reduced maintenance costs and greater reliability are also claimed.

The capability of six lines of *text* enables more *information* to be printed, *coding* either in two *locations* simultaneously, or speeds.

Separate product *detectors* and encoders allow for variation in line speed.

An optional auto flush system will flush and clean the printhead during shutdown.

It will be demonstrated alongside the Excel 170I Ultra and Excel High Resolution printers, plus the Sigmark case coder.